



HOW HOT WAS IT?

Fire ecology refers to the study of the response of and interactions between plants, animals and the environment and various fire regimes.

Fire intensity (The ferocity of a bushfire)

Fire intensity is a function of the fuel consumed and the rate of spread of the fire. It is expressed as the rate of energy release per unit length of fire front.

This is defined by the equation:

$$I = H \times W \times R \text{ where:}$$

I = fire intensity measured in kilowatts /metre.

H = heat yield of fuel measured in kilojoules/kg of fuel.

W = dry weight of fuel consumed measured in kilograms /square metre.

R = rate of spread in metres /hour.

A mild fire produces up to 350 kilowatts /metre. An intense fire produces 2000 or more kilowatts /metre.

The Kinglake fire was _____ kW/m.

Fire Intensity can also be described in terms of rate of spread and flame height.

Fireline intensity (KW /m)	Impact	Suppression Difficulty
20-500	Low intensity, patchy burn (the intensity prescribed for most fuel reduction burns). Rapid recovery of ecosystems.	Attack on the headfire is relatively easy
500-1700	Moderate intensity, little damage to ecosystems	Direct attack usually succeeds, but headfire must be "pinched in" from the flanks
1700-3500	Medium intensity, trees are killed, no or few unburnt patches. Very slow recovery of ecosystems	Direct attack not likely to be successful on head or flank fires
3500-7000+	High intensity, extensive and long-lasting damage to ecosystems	Crown fires occur - suppression impossible
20,000-60,000+	Extreme fire behaviour, ecosystems wiped out	Mass fires, firestorms - suppression impossible

Why do you think CFA crews are not allowed to fight fires of 4000kW/m?

What do you think can impact the fire intensity? (Kinglake complex fire)
